

ABSTRACT

Systems and methods monitor the activity of carbon in a heat treating atmosphere, e.g., where a two phase region is desired for spherodize annealing. The 5 systems and methods generate a computed activity of carbon value for the gas atmosphere as a function of temperature, partial pressure of oxygen, and carbon monoxide content of the gas atmosphere, and without determining a carbon dioxide content of the gas atmosphere. The systems and methods can make use of the 10 computed activity of carbon value, e.g., to control the gas atmosphere.